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IN THE CLAIMS

In accordance with the **REVISED AMENDMENT FORMAT** and waiver of 37 CFR §1.121, as promulgated by order of Stephen Kunin, Deputy Commissioner for Patent Examination Policy, on January 31, 2003, the entire set of presently pending claims has been reproduced below in the approved revised amendment format. No separate marked-up copy of the amended claims has been provided.

Please amend claims 5, 8 and 29 as follows.

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1. (Previously Presented) A system for determining the position of a working part of a tool on a machine comprising:

a position-determining apparatus comprising at least one detector equipment placed generally at a designated place on the machine spaced away from the working part of the tool, the position-determining apparatus configured to provide data that corresponds to the position and orientation of the designated place on the machine in a fixed coordinate system;

at least one position relationship device configured to determine a positional relationship of the working part of the tool relative to the designated place on the machine in a machine-based coordinate system;

a calculating device configured to provide at least one of the position and the orientation of the working part of the tool in the fixed coordinate system based upon the position and orientation of the designated place on the machine in a fixed coordinate system and the positional relationship of the working part of the tool relative to the designated place on the machine in the machine-based coordinate system.

2. (Previously Presented) The system according to claim 1, wherein:

the at least one detector equipment comprises at least one detector unit fixedly

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placed on the machine; and

the position- determining apparatus further comprises an inclination- and orientation-measuring device including a north-seeking unit adapted to instantaneously sense the direction of the machine in relation to north.

3. (Previously Presented) The system according to claim 1 wherein:

the position-determining apparatus further comprises a stationary measuring station placed in the vicinity of the machine, the stationary measuring station operatively configured to determine the position of the machine in cooperation with the detector equipment; and

the at least one detector equipment comprises at least two detector units placed at the designated place on the machine arranged in fixed positions relative to the machine, the at least two detectors arranged to cooperate with the stationary measuring station to give the orientation in space for the designated place on the machine.

4. (Previously Presented) The system according to claim 28, characterized in that the at least one moveable detector unit is rotatable around an axis, the detector unit further configured such that measurement towards the detector unit is indicated when the detector unit reaches determined angular positions around the axis in relation to the machine.

5. (Currently Amended) The system according to claim 1, characterized by at least one rotatably mounted and controllable optical unit placed on the machine ~~adapted to~~ that aligns towards a stationary measuring station such that the orientation of the optical unit relative to the machine is indicated and transmitted to the calculating device for determination of the orientation of the machine in the fixed coordinate system.

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6. (Previously Presented) The system according to claim 1, characterized in that each of the at least one detector equipment comprises at least one radio navigation antenna with a corresponding receiver.

7. (Previously Presented) The system according to claim 1, characterized in that the position- determining apparatus comprises a geodesic instrument with target-seeking function placed at a distance from the machine and measuring against at least one target on the machine.

8. (Currently Amended) The system according to claim 7, characterized in that each respective target is provided with an alignment indicator ~~adapted~~ to provide alignment indications for the geodesic instrument concerning the respective target towards which instantaneous target-seeking is to be made and for measuring towards the respective target.

9. (Previously Presented) The system according to claim 1, characterized in that the calculating device comprises:

a stored map with a desired topography of an area which is to be treated;

calculated data for the working part of the tool configured to provide position and angular positions relative to the map; and

a presentation unit configured to present the map and calculated data.

10. (Previously Presented) The system according to claim 1, characterized in that the position-determining apparatus comprises a relatively slow, accurate determining device which at time intervals accurately measures the actual position and orientation of the machine, and a relatively fast determining device which reacts on at least one of position

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and orientation differences to at least one earlier determination in order to calculate and update the determination between the said time intervals.

11. (Previously Presented) The system according to claim 10, characterized in that the relatively fast determining device comprises at least one accelerometer device on the machine adapted to measure the acceleration of the machine in at least one direction, and the calculating unit is further configured to integrate the indicated acceleration(s) and update the latest calculation result of the position of the working part of the tool in the fixed coordinate system.

12. (Previously Presented) The system according to claim 10, characterized in that the relatively fast determining device comprises at least one rotation-indicating device for rotation around at least one axis of the machine.

13. (Previously Presented) The system according to claim 1, characterized in that the calculating unit uses earlier calculation results to calculate a probable position, orientation, direction of work and speed a certain time in advance for the working part of the tool.

14. (Previously Presented) A method for determining the position of a working part of a tool on a machine comprising:

measuring both a position and an orientation of a designated place on the machine spaced away from the working part of the tool and in a fixed coordinate system;

determining a positional relationship of the working part of the tool relative to the designated place in a machine-based coordinate system; and

calculating in the fixed coordinate system, at least one of an instantaneous position of the working part of the tool and an instantaneous orientation of the working part of the tool based upon the measured position and orientation of the designated place on the

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machine and the positional relationship of the working part of the tool relative to the designated place on the machine.

15. (Previously Presented) The method according to claim 14, further comprising fixedly placing at least one detector unit and a north-seeking unit on the machine for instantaneous sensing of the direction of the machine in relation to north.

16. (Previously Presented) The method according to claim 14, wherein the act of measuring the position of the designated place on the machine comprises:

utilizing a stationary measuring station placed in the vicinity of the machine; and

providing at least two detector units placed at the designated place on the machine arranged in fixed positions relative to the machine, said at least two detectors arranged to cooperate with the stationary measuring station to give the orientation in space for the designated place on the machine.

Cont.

17. (Previously Presented) The method according to claim 31, further comprising:

rotating the detector unit around an axis placed at a distance therefrom; and

measuring against the detector unit when the detector unit takes up determinable angular positions around the axis in relation to the working machine.

18. (Previously Presented) The method according to claim 14, further comprising:

rotatably mounting at least one controllable optical unit on the machine;

aligning the optical unit to a stationary measuring station;

indicating the orientation of the optical unit in relation to the machine; and

calculating the orientation of the machine in the fixed coordinate system.

19. (Previously Presented) The method according to claim 14, characterized in that the measuring of both position and orientation is performed with the help of at least one radio navigation antenna with a corresponding receiver.

20. (Previously Presented) The method according to claim 14, characterized in that the measuring of both position and orientation comprises:

providing a geodesic instrument with target-seeking function placed at a distance from the machine; and

measuring against at least one target on the machine.

21. (Previously Presented) The method according to claim 20, further comprising providing direction-indication for the geodesic instrument as to an associated target towards which instantaneous target seeking is to be performed for measuring against the associated target.

22. (Previously Presented) The method according to claim 14, characterized by storing a map with desired topography of a region which is to be processed in a calculating device, calculating data for the working part of the tool and presentation thereof as position and angular positions relative to the map on a presentation unit.

23. (Previously Presented) The method according to claim 14, characterized in that the position and orientation determination is performed comprising a relatively slow determination in order to measure, at time intervals, at least one of the actual position of the machine and the orientation of the machine, and a relatively fast determination which reacts to at least one of position and orientation differences relative to earlier determination(s) in order to calculate and update the determination between the said time intervals.

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24. (Previously Presented) The method according to claim 23, wherein the relatively fast determination comprises:

acceleration-measuring in at least one direction;

integrating the indicated acceleration(s); and

updating the latest calculation result of at least one of the position and the orientation in the fixed coordinate system.

25. (Original) The method according to claim 23, characterized in that, at the relatively fast determination, at least one rotation-indication is performed for rotation around at least one axis of the machine.

26. (Previously Presented) The method according to claim 14, characterized by calculation, with the help of earlier calculation results, of a probable position, orientation, working direction and speed a certain time in advance for the working part of the tool.

Cont.

27. (Previously Presented) The system according to claim 2, wherein the north-seeking unit comprises a select one of a north-seeking gyroscope and an electronically readable compass.

28. (Previously Presented) The system according to claim 1, wherein:

the position-determining apparatus further comprises a stationary measuring station placed in the vicinity of the machine, the stationary measuring station operatively configured to determine the position of the machine in cooperation with the detector equipment; and

the at least one detector equipment comprises at least one movable detector unit movable between determinable positions in relation to the machine.

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29. (Currently Amended) The system according to claim 5, wherein:

a select one optical unit is ~~adapted to be~~ aligned towards the stationary measuring station at least in part using a chosen beam selected from the group consisting of the measuring beam of the stationary measuring station, a beam parallel with the measuring beam of the stationary measuring station, and a beam transmitted from the optical unit and reflected in a prism in the stationary measuring station.

30. (Previously Presented) The method according to claim 15, wherein the north-seeking unit comprises a select one of a north-seeking gyroscope and an electronically readable compass.

31. (Previously Presented) The method according to claim 14, wherein measuring the position of the designated place on the machine comprises:

utilizing a stationary measuring station placed in the vicinity of the machine, the stationary measuring station configured to cooperate with a detector device; and

providing at least one movable detector unit movable between positions with determinable positions in relation to the designated place on the machine.

Statement of the Substance of the Interview

On July 10, 2003, Thomas E. Lees, on behalf of the applicant, conducted a telephone interview with the Examiner in the above matter. No exhibits were shown and no demonstrations took place. Claims 13, 16 and 17 were discussed. No prior art was discussed and no claim amendments were addressed.

Neither the applicant nor the Examiner put forth any principal arguments. Rather, claims 13, 16 and 17 were identified on the Office Action Summary sheet as being rejected, however, no explanation as to the basis of these rejections was asserted in the Detailed Action. As such, the applicant sought clarification as to the status of the above claims. No other pertinent matters were discussed.

The Examiner indicated that the applicant should respond to the Office Action as if the above claims were objected to, and if the arguments presented by the applicant were not found persuasive, then the Examiner would issue a second, non-final action. The applicant has set out the appropriate arguments in the Remarks section herein.